

US EPA ARCHIVE DOCUMENT

Workshop Description and Agenda
EPA Region 10 Climate Change TMDL Pilot
South Fork Nooksack River, WA
June 25, 2012 | 8:30 AM to 4:15 PM

Location

U.S. EPA Region 10, 1200 Sixth Avenue, Suite 900, Seattle, WA 98101
15th Floor/Rooms N, P & Q

Project Description

The Environmental Protection Agency's (EPA's) Region 10, Office of Research and Development (ORD) and Office of Water (OW) have initiated a Research Project to develop a Climate Change Temperature Total Maximum Daily Load (TMDL) for the South Fork (S.F.) Nooksack River, located in the state of Washington (WA). EPA is using a "parallel study strategy" to concurrently accomplish the Research Objective (Longitudinal Analysis (Start-To-Finish) Climate Change Temperature TMDL) and Regulatory Objective (S.F. Nooksack River, WA Temperature TMDL).

The output or deliverable from the Research Objective is an EPA Report that documents the process and analysis utilized to develop the Climate Change Temperature TMDL for the S.F. Nooksack River, WA. The output or deliverable from the Regulatory Objective is the S.F. Nooksack River, WA Temperature TMDL - Water Quality Improvement Report issued by the State of Washington; Department of Ecology.

These two objectives will share both process and analysis to the extent that they are mutually beneficial and supportive. However, it is anticipated that the Research Objective will explore additional policy approaches and analytical methods that are not appropriate or relevant to the Regulatory Objective.

The project will be structured as a "Risk Assessment" in that a range of outcomes from the Intergovernmental Panel on Climate Change (IPCC) Scenarios will be assessed, rather than a single prediction of climate change effects on stream temperature and the related Water Quality Standard.

Project Team

The EPA Region 10 Climate Change TMDL Pilot Team (Climate Change Team) consists of EPA, the Washington State Department of Ecology (Ecology), the Nooksack Indian Tribe and the Lummi Nation. The Project Team will actively solicit the involvement and participation of other Federal, State, Local and NGO staff as members of this Interdisciplinary Team.

Project Background

The study area for this study includes all portions of the S.F. Nooksack River Watershed. There are 15 segments on the S.F. Nooksack River that are identified as being impaired for temperature on Washington's 2008 303(d) list.

In the Washington State water quality standards, aquatic life use categories are described using key species (salmon versus warm-water species) and life-stage conditions (spawning versus rearing) [WAC 173-201A-200; 2003 edition]. The beneficial uses to be protected within the S. F. Nooksack watershed include Core Summer Salmonid Habitat. Above the junction at Fobes Creek, the beneficial uses to be

protected for the Nooksack River and its tributaries also include Char spawning and rearing (WAC 173-201A-602].

The temperature criteria established to protect these uses are described in Table 200 (1) (c) of the water quality standards, and include numeric criteria of 12 °C for Char Spawning and Rearing; and 16° C for Core Summer Salmonid Habitat. When the background condition is cooler than the criteria, the temperature increases resulting from the combined effect of all nonpoint source activities in the waterbody must not, at any time, exceed 2.8° C (WAC 173-201A-200 (1)(c)(ii). If a waterbody's temperature is warmer than the criteria (or within 0.3° C of the criteria) and that condition is due to natural conditions, then human actions considered cumulatively may not cause the 7-DADMax temperature of that water body to increase more than 0.3° C (WAC 173-201A-200 (1)(c)(i). Modeling is typically used to estimate the natural condition temperature.

Workshop Objectives

- Identify the scope, approach, methods and study design for the EPA Climate Change TMDL Pilot on the S.F. Nooksack River, WA to: (1) evaluate the potential impacts of climate change on stream temperature and stream flow for three emission scenarios, based on Regionally Downscaled Global Climate Models (GCMs) for the 2020s, 2040s and 2080s, and 2) to evaluate the effects of riparian shading and in-channel protection/restoration of thermal refugia to meet the Clean Water Act (CWA) temperature criteria for Salmon Habitat beneficial uses.
- Integrate the objectives of the CWA 303(d) TMDL Provisions to protect Salmon Habitat beneficial uses that support the recovery goals of the Endangered Species Act (ESA) Salmon Recovery Plan. Utilize the best available science from the Climate Science Programs under the United States Global Change Research Program (USGCRP).
- Involve Environmental Practitioners and Policy Makers (Federal, Tribal, State, Local & NGO) in the development of a Climate Change Risk Assessment/Management (Vulnerability/Adaptation) Research Pilot.
- Implement EPA's National Water Program 2012 Strategy: Response to Climate Change – March 2012 to help achieve EPA's Vision Statement on Water Quality by promoting the management of sustainable surface water resources under changing climate conditions.

For questions or more information on the workshop contact:

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Agenda

8:30 a.m. – 9:00 a.m.	<p>Welcome and Workshop Overview</p> <p>Welcome (8:30 – 8:35 a.m.) <i>Michelle Pirzadeh, Deputy Regional Administrator, EPA Region 10</i></p> <p>Opening Remarks (8:35 - 8:40 a.m.) <i>Mike Shapiro, Deputy Assistant Administrator, Office of Water, EPA</i></p> <p>Meeting Logistics (8:40- 8:45 a.m.) <i>Bruce Duncan, Project Lead, EPA Region 10</i></p> <p>Project Overview (8:45 – 9:00 a.m.) <i>Steve Klein, Research Forester, EPA ORD – Corvallis</i></p>
9:00 a.m. – 9:45 a.m.	<p>Policy Framework and Climate Change Context</p> <p>CWA 303(d) TMDL Provisions (9:00 - 9:15 a.m.) <i>Dave Croxton, Washington TMDL Lead, EPA Region 10</i></p> <p>ESA PNW Salmon Recovery Planning: Assessing Salmon Vulnerability to Climate Change (9:15-9:30 a.m.) <i>Tim Beechie, Research Scientist, NOAA Fisheries, NW Fisheries Science Center – Seattle</i></p> <p>Climate Science Programs under the USGCRP: The Chronology and Development of the Climate Science Program in the PNW (9:30 – 9:45 a.m.) <i>Amy Snover, CSES Co-Director, Climate Impacts Group (CIG)</i></p>
9:45 a.m. – 10:00 a.m.	<p>Break</p>
10:00 a.m. – 11:30 a.m.	<p>Modeling: Approach and Methods</p> <p>Leveraging CIG's "Climate Change Projections for USFS Lands in Oregon and Washington" to Predict Stream Flow and Air Temperature in the South Fork Nooksack River (10:00-10:30 a.m.) <i>Nathan Mantua, CSES Co-Director, Research Professor, CIG</i></p> <p>Stream Temperature Modeling: Predicting Stream Temperature from Air Temperature under Climate Change in the S.F. Nooksack River (10:30-11:00 a.m.) <i>Dan Isaak, Fisheries Research Scientist, Rocky Mountain Research Station U.S. Forest Service</i></p> <p>Creating Boundary Conditions for QUAL2Kw and Riparian Shade TMDL Models from Climate Change Modeling Outputs (11:00-11:30 a.m.) <i>Ben Cope, Environmental Engineer, EPA Region 10</i></p>

11:30 a.m. – 1:00 p.m.

Working Lunch

Attendees bring/purchase lunch on their own and return to Workshop (11:30-12:00 p.m.)

[EPA Region 10 Climate Change TMDL Pilot, Process Roadmap](#) (12:00 - 12:30 p.m.)

Bruce Duncan, Project Lead, EPA Region 10

Questions, Comments and Suggestions from Workshop Participants on Morning Sessions (12:30 p.m. – 1:00 p.m.)

Hope Herron, Workshop Facilitator, Tetra Tech

1:00 p.m. – 3:00 p.m.

Modeling: Application and Interpretation

[Panel Discussion](#): Modeling Integration, Inputs, Outputs and Uncertainty (1:00-2:00 p.m.)

Alan Hamlet, Research Scientist and Research Assistant Professor, CIG

Dan Isaak, Fisheries Research Scientist, Rocky Mountain Research Station U.S. Forest Service

Teizeen Mohamedali, Environmental Engineer, Washington Department of Ecology

Stephanie Brock, Environmental Engineer, Washington Department of Ecology

[Panel Discussion](#): Modeling Interpretation and Application of Results to TMDL Development and Implementation Plan; the Climate Change Risk Assessment (2:00-3:00 p.m.)

Steve Klein, Research Forester, EPA Office of Research and Development – Corvallis

Laurie Mann, Washington TMDL Lead, EPA Region 10

Bruce Duncan, Project Lead, EPA Region 10

Tim Beechie, Research Scientist, NOAA Fisheries, NW Fisheries Science Center – Seattle

3:00 p.m. – 3:15 p.m.

Break

3:15 p.m. – 4:00 p.m.

Questions, Comments and Suggestions from Workshop Participants on Afternoon Panel Discussions

Hope Herron, Workshop Facilitator, Tetra Tech

4:00 p.m. – 4:15 p.m.

Workshop Wrap-up and Next Steps

Bruce Duncan, Project Lead, EPA Region 10

Dave Olszyk, EEB Acting Branch Chief, ORD – Corvallis